International Pre Conference Workshop on
Microbial Ecology & Eco Systems
June 28-29, 2018 | Alexandria, Egypt

Purification and serological reactivity of an isolate of Sweet potato feathery mottle virus from sweet potato

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Sweet potato feathery mottle virus (SPFMV) isolated from sweet potato plants was purified using two methods different in the procedure of extraction and precipitation. Phosphate buffer and polyethylene glycol (PEG) in the first and borate buffer and differential centrifugation in the second were used as extraction buffers and precipitation means, in the order given. The first method yielded about 2.84 mg virus/100 g fresh weight of sweet potato leaves while the second procedure gave a corresponding value of 1.63 mg virus/100 g fresh weight. The Ultraviolet absorption spectra of the purified virus preparations were typical for nucleoproteins. A polyclonal antiserum against the virus was produced by two different protocols of injection (four weekly intramuscular injections versus one intravenous followed by three intramuscular injections) and antisera titre was determined by indirect ELISA. The titre with the first protocol reached up to 1:64000 while with the second one, it was only 1:8000. The antisera raised could detect SPFMV in some naturally infected sweet potato plants using indirect ELISA with high efficiency. Adding cellulase or macerozyme to the extraction buffer enhanced the sensitivity of the test. The highest absorbance values were obtained when SPFMV infected samples were extracted in carbonate buffer and treated with macerozyme followed by cellulase.

Biography

Maha A. Kawanna is currently an assistant professor of Plant Pathology, Department of Plant Pathology, Faculty of Agriculture, Alexandria University. She received her PhD degree in Plant Pathology, Faculty of Agriculture El-Shatby, Alexandria, Egypt at 2007. The main interests include diagnosis of plant viral disease, identification of plant viruses using serological and molecular techniques, studying the distribution of the important plant viruses. She contributes in the agriclinic by detection of the plant viruses affecting the main crops using biological, serological techniques as indirect ELISA and Tissue blot immunoassay (TBIA). She is teaching basics of plant pathology and plant virology courses for undergraduate students.

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